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ing the extent to which they are open to structural variations.¹ The first species reported on is *Actinia equina*, of which 165 specimens were examined. In all these the mesenteries were hexamerous in arrangement, but in seven, or 4.24 per cent, abnormalities were noted in the siphonoglyphs. Four of these seven specimens had one siphonoglyph each; one had three, and two had two, which, however, were not opposite each other. In all cases the siphonoglyphs were accompanied with directive mesenteries, and no such mesenteries were found except associated with siphonoglyphs. This enumeration shows that *A. equina* is far more stable as a species than other actinians, such as *Metridium marginatum*, in which the abnormal individuals far outnumber the normal ones.

G. H. P.

Dorsal Organs of Arthropods.—Nussbaum and Schreiber² conclude that the various structures in the arthropods,—some median and others paired,—known as dorsal organs, are cænogenetic in character, and have as their function the reduction of the vitellocyte layer, while in a few cases it produces a secretion which in *Idotea* fixes the embryo to the chorion. In other cases the secretion may serve as a protective layer between chorion and embryo.

Zoological Notes.—We have already referred to the failure of the Senff expedition to northern Africa in its endeavor to obtain materials illustrating the embryology of the Dipnoan Protopterus. We learn, however, that the University of Cambridge has received a large series of embryos of the closely allied *Lepidosiren* from South America, which, we hope, may give us a better knowledge of this interesting group.

The United States Fish Commission has been actively engaged in the study of the tile fish, and this year finds them very abundant and extending over a larger range than was known before.

The discovery of a fourth specimen of the rare rail, *Notorius hochstetteri*, in New Zealand, is announced.

Göppert concludes, as the result of detailed studies on the laryngeal apparatus of the Amphibia,³ that the whole laryngeal-tracheal skeleton—that is the arytenoids and the cricoids, as well as the

¹ Clubb, J. A. The Mesenteries and Œsophageal Grooves of *Actinia equina* Linn. *Trans. Liverpool Biol. Soc.*, vol. xii, pp. 300–311.

² *Biol. Centralblatt*, Bd. xviii (1898), p. 736.

³ *Morph. Jahr.*, Bd. xxvi (1898), p. 282.

tracheal and bronchial rings — arise from the seventh visceral (fifth branchial) arch, and that the laryngeal muscles arise from the musculature of the same arch. In the same number of the journal, Hochstetter continues his researches on the blood vessels, this time discussing the arteries of the alimentary canal. Bolk describes an abnormal condition in the shorter head of the biceps femoris muscle of the orang, and discusses its bearings upon the morphology of this muscle. Maurer describes the vacuolization of the epidermis of the anura at the time of metamorphosis, while Gegenbaur has some remarks upon anatomical nomenclature, urging the retention of personal names as a guide to the history of the subject, as well as considering the terminations *-ideus* or *-oides*.

BOTANY.

A New Text-book on Fossil Plants.¹ — Of late years an increasing interest in the study of plant-fossils has been developed among botanists, especially with reference to the bearing of these fossil remains upon the origin of existing plants.

The great importance of a thorough knowledge of fossil plants in the study of the evolution of plant forms is sufficiently obvious; but, unfortunately, much of the descriptive work upon fossil plants has been done by men who were not botanists, and whose knowledge of living plants was of the slightest. This fact has helped to discredit much of the work in paleobotany, and a great deal of really important work has not, perhaps, received the attention it deserved. There is at present almost hopeless confusion in the nomenclature of fossil plants, names having frequently been given to unrecognizable fragments of more than dubious autonomy, and often enough shown later not to be plant remains at all. It is most encouraging then when we find trained botanists entering the field; men who are really competent to interpret the specimens with which they have to deal, and not so much interested in adding to the already overgrown list of doubtful fragments as in doing something to throw light upon the real affinities of the forms already described.

Professor Seward's thorough training, both as botanist and geologist, has prepared him admirably for the task he has set himself, and it must be admitted that he has acquitted himself in a most satis-

¹ Seward, A. C., M.A., F.R.S. *Fossil Plants*, vol. i. Cambridge, University Press, 1898.